

CLASSIFICATION RESTRICTED  
SECURITY INFORMATION

RESTRICTED

CENTRAL INTELLIGENCE AGENCY

REPORT

STAT

INFORMATION FROM

FOREIGN DOCUMENTS OR RADIO BROADCASTS CD NO.

COUNTRY Yugoslavia

SUBJECT Economic - Metallurgy, electric power, industry

HOW PUBLISHED Monthly periodical

WHERE PUBLISHED Ljubljana

DATE PUBLISHED Jan 1950

LANGUAGE Slovenian

DATE OF INFORMATION 1950

DATE DIST. 8 Jan 1952

NO. OF PAGES 2

SUPPLEMENT TO REPORT NO.

THIS DOCUMENT CONTAINS INFORMATION AFFECTING THE NATIONAL DEFENSE OF THE UNITED STATES WITHIN THE MEANING OF ESPIONAGE ACT 50 U. S. C. 31 AND 32, AS AMENDED. ITS TRANSMISSION OR THE REVELATION OF ITS CONTENTS IN ANY MANNER TO AN UNAUTHORIZED PERSON IS PROHIBITED BY LAW. REPRODUCTION OF THIS FORM IS PROHIBITED.

THIS IS UNEVALUATED INFORMATION

SOURCE Industrijski Vestnik, Vol V, No 1, 1950ELECTRIC METALLURGY IN THE YUGOSLAV FIVE-YEAR PLAN

Prof Engr Ciril Rekar

Prior to the war, the electric power stations in Yugoslavia produced 1,100 million kilowatt-hours. Most of this power came from the large hydro-electric power stations on the Cetina, Krka, and Drava rivers, some medium-sized power stations on the Pliva and the Sava rivers, and some power stations of industrial and municipal significance.

Most of the enormous water-power potential was not utilized; hundreds of thousands of tons of coal burned in storage, and billions of tons of lignite remained unused in the mines.

A unified plan to electrify all Yugoslavia has never existed, so Yugoslavian electrification covered only a few areas in the West.

By 1951, Yugoslavia will have built new electric power stations with a total capacity of 1,550,000 kilowatts and have boosted the production of electric power to 4,350,000,000 kilowatt-hours, or almost four times the prewar production.

The Five-Year Plan calls for the mining and electric-metallurgy industries to use approximately 1,520,000 kilowatt-hours, or 35 percent of the total amount of power produced.

For a better understanding of the function and importance of the electric-metallurgy industry, the furnace in which iron ore is smelted must be considered first. To obtain one ton of pig iron approximately one ton of metallurgical coke must be used. Only one third of the coke is consumed in reducing the ore, while two thirds of it is used to produce the heat needed to dry the ore, burn the limestone, melt the slag and pig iron, and bring them all to a temperature of about 1,300 degrees centigrade.

- 1 - RESTRICTED

CLASSIFICATION RESTRICTED

STATE	<input checked="" type="checkbox"/> NAVY	<input checked="" type="checkbox"/> NSRB	DISTRIBUTION																	
ARMY	<input checked="" type="checkbox"/> AIR	<input checked="" type="checkbox"/> FBI																		

RESTRICTED **RESTRICTED**

STAT

Consequently, the desire to replace expensive metallurgical coke with some other fuel, or at least that part which has no other function than to produce adequate heat for heat and melting the contents of the smelting furnace, is understandable.

Ever since it was known that a spark arcing across a gap between two electrodes releases heat intense enough to melt even those metals most resistant to melting, and that anything inserted in the gap reaches an extremely high temperature, efforts have been made to make industrial use of the heat so produced. This, of course, became possible with the construction of big generators, transformers and electric furnaces. The amount of electric power needed for an electric furnace is very great; approximately 2,500 kilowatt-hours are required for each ton of pig iron.

Under certain conditions, the electric smelting furnace can replace the ordinary smelting furnace. Ferromanganese, which is needed in steel manufacture, can be produced from manganite in the electric smelting furnace just as well as in the ordinary furnace. By using electric power, Yugoslavia has saved approximately 1,700 kilograms of coke per ton of ferromanganese; this process requires approximately 3,500 kilowatt-hours. The net gain has been so satisfactory that Yugoslavia will produce ferromanganese chiefly in electric furnaces.

Other useful metals and alloys which can be produced economically only in the electric furnace are ferrosilicon, which is obtained from pure quartz, ferrochrome obtained from chromium, ferrowolfram, ferrovanadium, ferrotitanium, and a long list of metals and alloys required for special tools and stainless steel.

Calcium carbide is produced in electric furnaces from lime and coke. The production of synthetic rubber depends on the carbide furnace. One modern electric furnace for carbide requires as much as 40,000 kilowatt-hours (this exceeds the maximum power that the Fala Power Station can generate).

Other extremely important materials which can be produced only with the help of electric power and intensely high temperatures are electrographite from coke, corundum from bauxite, and silicon carbide or carborundum from quartz.

The production of metallic magnesium and other light metals is also connected with the electric-furnace method; so is the electrolytic production of zinc and copper.

The production of high-grade steel in the electric furnace consumes about 1,000 kilowatt-hours per ton of steel.

Electric power consumed in the production of one ton of pig iron is 2,500 kilowatt-hours; steel, 1,000; ferromanganese, 3,500; ferrochrome, 8,000; ferrosilicon, 18,000; ferromolybdenum, 15,000; ferrowolfram, 7,000; ferrotitanium, 6,000; aluminum, 22,000; magnesium, 25,000; electrographite, 10,000; corundum, 5,000; carborundum, 10,000; calcium carbide, 2000; zinc (electrolyzed), 3,600; and copper (electrolyzed), 400.

The electric metallurgical production of the metals, alloys, and materials required for the fulfillment of the Five-Year Plan will utilize 2,200,000,000 kilowatt-hours, or half the power which Yugoslavia will be able to produce in 1951. The remaining power will be reserved for railroads, mines, transportation, agriculture, household use, and possible losses.

Electric metallurgical plants are very flexible in operation and can adapt their production to available power.

- E N D -

**RESTRICTED**

- 2 -

RESTRICTED